



Thames River

PHOSPHORUS REDUCTION COLLABORATIVE

Project Progress – May, 2021

Woodstock, Ontario

Site:

A 70-acre farm with vegetable, row crops and alfalfa. Crops are rotated based on strips used for strawberries and other green vegetables. In areas other than the vegetable growing area (e.g. hay, corn, soybeans), manure is applied annually. The farm has a municipal drain on the property with three blind inlets.

Partners:

[GAPS](#) is responsible for installation, sampling and monitoring through [Honeyland Ag Services](#). The Thames River PRC provides sample result compilation under the supervision of the Ontario Ministry of Agriculture, Food and Rural Affairs.

Research description:

One of the municipal blind inlets drains about 50 acres in an alfalfa field. In this test, an inlet cover is equipped with five Hickenbottom intakes which contain MetaMateria, a sponge that absorbs phosphorus (P), through which water has to infiltrate.



In two other blind inlets, there are existing Hickenbottoms, each of which has been fitted with a Silt Sock wood chip ring protecting an inner ring filled with MetaMateria.

The site is instrumented to measure P removal from surface water flow as well as sediment control. The MetaMateria sponge is retrieved annually in July to measure its efficiency at removing P. The sponge has a life of seven years, so can be re-used.

Sampling occurs at all three locations after significant snow melt and rainfall events.

Measurements:

Pounds of P removed will be the metric and calculated using data on total P and dissolved P for the efficiency of the technology. Water flow observations will also be recorded to provide further insight into the performance of the Hickenbottoms and the MetaMateria inserts.

Progress: Using new LiDAR data, an OMAFRA engineer calculated the surface areas served by each structure. The information was fed into a spreadsheet prepared to calculate P capture. While the amounts removed were very small, the proof of concept establishes the opportunity to treat at field level. Details on data are contained in [this presentation](#) (slides 7 and 12)

